PRECISION ARTILLERY ROUND TESTING REACHES A CRESCENDO

Chuck Wullenjohn

The jagged peaks and lonely desert landscape of U.S. Army Yuma Proving Ground's Kofa Firing Range echoed to the booming sound of massive artillery barrages throughout April and early May of this year. The 1st Battalion of the 17th Field Artillery, which traveled to Yuma, AZ, from Fort Sill, OK, had come to the proving ground to use the Sense and Destroy Armor (SADARM) precision artillery projectile in a realistic combat environment. And what the unit came for was exactly what it got.

The 208 members of the battalion, which is part of the 3rd Armored Corps Artillery, constructed an administrative and support base camp near the proving ground's airfield, where they stayed on weekends. They also formed a support training and tactical operations area 60 miles away on the firing range. They brought along eight M109A6 Paladin self-propelled Howitzers, eight M992A2 Field Artillery Ammunition Supply Vehicles, five command-post vehicles, one M88 recovery vehicle, and dozens of other support vehicles. Most of the equipment was transported by rail, while the bulk of the soldiers traveled to and from Yuma by air.

The main purpose of the battalion's Arizona visit was to participate in a 6-week limited user test (LUT) of the 155mm SADARM precision artillery projectile, which has undergone testing at Yuma Proving Ground since the late 1980s. Unlike earlier stages of testing, which were research and development oriented, the LUT required firing the projectiles in strict accordance with current Army doctrine used in battlefield environments. Four fire missions consisting of 24 rounds apiece, each conducted at a different time of day, were fired during the LUT.

"During the test, there were no strict firing positions for the howitzers. The unit was given a 49-square-kilometer area to maneuver in, with fire mission information transmitted from a simulated brigade headquarters through the operational chain down to each individual gun. The objective was to evaluate the projectile as it would be used in an operational environment," explained Ron Jackson, Yuma Proving Ground test director.

A realistic threat target area was constructed on an existing proving ground impact area, located approximately 12 miles from the Paladins. Self-propelled howitzers and a command and control vehicle manufactured in the former Soviet Union were concealed behind protective earthen berms and under camouflage netting in the target area, just as they would be in actual combat. Each of the target howitzers was maintained in operating condition during the test. Specially designed heaters were installed in the tube of each howitzer to generate the heat appropriate to a recently fired weapon. It was important to operate the engines and the tube heaters to generate realistic heat signatures used for targeting by the incoming SADARM projectiles.

The highly sophisticated SADARM projectile is an outgrowth of smart weapons research that began in the early 1960s. However, unlike smart bombs used during the Persian Gulf War and in the NATO campaign in Kosovo, SADARM is a true "fire-and-forget" weapon that senses and destroys enemy-armored targets. SADARM was primarily designed as a counterbattery weapon to destroy or disable enemy artillery pieces.

Designed to be fired from the 155mm howitzer, SADARM projectiles look and fire like conventional projectiles. However, each SADARM projectile contains two submunitions that are expelled over the target area to independently acquire and destroy enemy weapons. At several hundred feet above the ground, each submunition fires an explosively formed penetrator that attacks enemy artillery from its most vulnerable direction—above the target. Program officials say SADARM will be a potent and reliable way to suppress enemy counterbattery fire on the future battlefield.

Besides firing the SADARM projectiles for testing, the soldiers of the field artillery battalion used the opportunity to conduct a great deal of intensive training in a variety of areas. They fired more than 1,500 high-explosive rounds during their 6-week stay, which is equivalent to what the battalion normally would fire in an 8-month period.

"We fired combinations of projectiles and charges normally reserved only for wartime, so this was a unique opportunity," said MAJ John Gillette, Operations Officer for the 1st Battalion of the 17th Field Artillery. Gillette added that at Yuma, the

The rugged, pristine terrain of the Yuma Proving Ground desert proved an ideal location to conduct SADARM testing under realistic field conditions.

M109A6 Paladin self-propelled Howitzers, belonging to the 1st Battalion of the 17th Field Artillery, get ready for movement to firing positions on the Kofa Firing Range.

battalion could do things it usually could not do. "Under supervision of a Yuma Proving Ground expert, we loaded and air dropped a load of ammunition from a C-17 aircraft and direct fired our howitzers against scrap vehicles. We used our MK 19 and M203 grenade launchers and fired the .50-caliber machine guns mounted on each vehicle. Since we usually fire only in the indirect fire mode, our gunners don't observe rounds impacting the target. Direct fire training gave our people the chance to see the results of what they do—which were dramatically impressive. It was a real morale booster," said Gillette.

The soldiers loudly cheered, gave each other high fives, and happily jumped up and down as they saw what their rounds did to the targets.

Gillette feels the battalion's participation in the test proved to be an excellent overall training opportunity. The unit was able to train in all its mission-essential tasks, including deployment to a remote location, delivering accurate fire support, and sustaining and protecting the force.

"Given the constraints of our current budget," explained Gillette, "we wouldn't have had a superb training opportunity like this otherwise. The soldiers of the unit are used to training at Fort Sill—they intimately know the firing positions and the terrain. Our deployment to Yuma Proving Ground was like deploying to a combat zone. It was a great learning experience."

SFC Samuel Martinez, Battalion Master Gunner, says his own biggest challenge was coordinating the flow of information among the various organizations involved in the test. The Fire Support Test Directorate of the Operational Test Command, the SADARM Project Manager, our own command group, and, of course, Yuma Proving Ground, all needed to be on the same sheet of music. This was a problem at first, for sometimes we got input from everyone at once. But we got it all worked out in fairly short order," he said.

The unfamiliarity of the desert terrain and the climate proved to be a challenge to everyone in the unit, said Martinez. He said the high temperature during the day, which climbed to over 100 degrees Fahrenheit, and the chilly evenings made it rough. Also, the tactical operations area, located a great distance from civilization, required a long logistics tail.

"The only thing we didn't have was an enemy firing at us. For a realistic training situation, it just couldn't be beat. But I also want to acknowledge the outstanding support of the local community. Everyone went out of their way to help us, from the people at the post bowling alley who changed their schedule to accommodate our needs, to the travel folks who helped us arrange a weekend trip to San Diego," said Gillette.

Cyndi Ford, Yuma Proving Ground Assistant Readiness Officer, said the support offered to the unit was typical of what is done for other units visiting the proving ground throughout the year. Her office coordinates all unit requirements from on-site support and services to local purchases and even the rental of necessary equipment. The purpose is to allow the visiting unit to concentrate on its mission rather than administrative requirements.

For the 1st Battalion of the 17th Field Artillery, she says her office ensured evaporative coolers were installed in the battalion's food preparation and dining areas to provide air circulation, lower the temperature, and keep bugs away. Ice and drinking water were provided each day, as well as any other type of required logistical support. "We were on the phone coordinating things on a daily basis," she said.

Although the chief mission of Yuma Proving Ground centers on the developmental testing of weapon systems and munitions, desert training has assumed more prominence in recent years. Almost an exact match in terms of terrain and temperature to that found near the borders of Saudi Arabia, Kuwait, and Iraq, Yuma Proving Ground has seen the number of military organizations conducting training activities at the proving ground dramatically climb from 4 in 1989 to 52 in the first 6 months of FY00. And because of the installation's diverse facilities, sophisticated range instrumentation, and vast firing areas that allow for numerous scenario possibilities, units come to the proving ground on a year-round basis. By the end of FY00, the number of units trained is expected to increase to more than 80.

"The SADARM limited user test demonstrated that Yuma Proving Ground is well equipped to perform combined operational and developmental testing, which will become more common in the future. No other facility has the unspoiled terrain and excellent test facilities we have. We're a real national defense asset, especially as the military moves into the new century," said Jackson.

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